

LXXX. *A Dissertation on the Antiquity of Glass in Windows. In a Letter to the Rev. Tho. Birch, D. D. Secret. R. S. By the Rev. John Nixon, M. A. F. R. S.*

Dear Sir, London, March 2. 1758.

Read Mar. 2, 1758. I Had the honour last winter to lay before
the Royal Society a few observations
upon some of the curiosities found at Herculaneum,
&c. (1). Among other articles, I just mentioned a
piece of a plate of white glass; and now beg leave
to inquire into the uses, to which such plates might
be applied in the early age, to which this fragment
undoubtedly belongs.

And here a person, who forms his ideas of ancient customs by what he sees practised in later times, may be ready to offer several conjectures; in some of which he will, probably, be mistaken; as in others he may be justified by the genuine evidences of antiquity.

And, first, It is obvious to imagine, that such plates might serve for *specula*, or looking-glasses. And, indeed, that *specula* were anciently made, not only of metals, and some stones, as the (2) phengites, &c. but also of glass, may, I think, be collected from Pliny, who, having mentioned the city of Si-

(1) In a paper read Feb. 24. 1757. See Art. xiii. p. 88.

(2) Porticum, in quibus spatiari consueverat (Domitianus) parietes phengite lapide distinxit, e cuius splendore per imagines quicquid a tergo fieret, provideret. Sueton. Domit. c. 14.

don as formerly famous for glass-houses, adds immediately afterwards, *Siquidem etiam specula excogitaverat* (3). But then it is to be observed, that before the application of quicksilver in the constructing of these glasses (which, I presume, is of no great antiquity), the reflection of images by such *specula* must have been effected by their being besmeared *behind*, or tinged *thro'* with some dark colour, especially black, which would obstruct the refraction of the rays of light (4). Upon these hypotheses (supposing the tincture to be given after fusion) the *lamina* before us may be allowed to be capable of answering the purpose here assigned.

It may further be suggested, that plates of this kind might be intended to be wrought into lens's, or convex glasses, either for burning, or magnifying objects placed in their focus. But this designation cannot be supported by proper vouchers from antiquity. On the contrary, we are informed, that the ancients used either *specula* (5) of metal, or balls (6) of glass for

(3) Plin. Nat. Hist. lib. xxxvi. c. 26. §. 66.

(4) Pliny mentions a kind of glass or jet called *obsidianum* :—*nigerrimi coloris, aliquando et translucidi, crassiore visu, atque in speculis parietum pro imagine umbras reddente.* Nat. Hist. lib. xxxvi. c. 26. §. 67.

And that the practice of staining glass was known in his time, appears from what he says concerning the *obsidianum* mentioned above :—*Fit et genere tinturæ—totum rubens vitrum, atque non translucidum.* Ibid.

(5) Panciroll. Rer. Mem. p. 288.

(6) These glass balls had sometimes water within them : *Ciam additâ aquâ vitreae pilæ sole adverso in tantum excandescant, ut vestes exurant.* Plin. lib. xxxvi. c. 22. §. 45.

for the former of these purposes ; as it is well known, that glas was not applied to the latter, in optical uses, till the beginning of the XIIIth century (7).

However, we may with greater probability propose another use, for which the ancients might employ such plates of glas, as are now under consideration, *viz.* the adorning the walls of their apartments by way of wainscot. This I take to be the meaning of the *vitreeæ camerae* mentioned by Pliny (8); who intimates, that this fashion took its rise from glass being used by M. Scaurus (9) for embellishing the scene of that magnificent theatre, which he erected for exhibiting shows to the Roman people in his ædileship (10). And we may collect from the same author (11) (what is further confirmed by his contemporary (12) Seneca), that this kind of ornament had

Invenio medicos, quæ sunt urenda corporum, non aliter utilius id fieri putare, quam crystallinâ pilâ adverſis positâ solis radiis. Plin. Nat. Hist. lib. xxxvii. c. 6. §. 10.

(7) Vid. Mons. Renaudot Memoires de l'Acad. des Inscript. tom. I.

(8) Vid. infra, not. 11.

(9) *Theatrum Scauri —— scena ei triplex in altitudinem CCCLX columnarum. —— Ima pars scenæ e marmore fuit : media e vitro : summa e tabulis inauratis.* Nat. Hist. lib. xxxvi. c. 15.

(10) A. V. 678. Hard. not. Plin. lib. xxxvi. c. 8.

(11) *Agrippa in thermis, quas Romæ fecit, figlinum opus encausto panxit, in reliquis albaria adornavit : non dubie vitreas facturus cameras, si prius inventum id fuisset, aut a parietibus scenæ — Scauri pervenisset in cameras.* Lib. xxxvi. c. 25. §. 64.

(12) Seneca, exposing the luxury of the Romans with regard to their baths, says, *Pauper sibi videtur ac sordidus, nisi parietes magnis ac pretiosis orbibus resulserint — nisi vitro absconditur camera.* — Ep. 86.

been admitted, in his time, into chambers in houses, baths, &c. Whether the plates used for this purpose were stained with various colours (as mentioned above), or had tints of divers kinds applied to the back part of them, I shall not pretend to determine: but in either way they would have a very agreeable effect.

The last destination, which the obvious congruity of the thing itself, countenanced by the practice of many ages past, as well as of the present time, would induce one to ascribe to such plates of glass, is that of windows for houses, baths, portico's, &c. But I am sensible, that whoever should be hardy enough to advance such an hypothesis, would be censured as an innovator, in opposing the general opinion of the connoisseurs in antiquity. These gentlemen are almost unanimous in asserting, that whenever we meet with mention made of *specularia* in ancient writers (especially those of, or near to, the age, to which we must refer this fragment), we are to understand by that term nothing but fences made of *laminæ*, either of a certain stone called from its transparent quality *lapis specularis* (13), brought first from Hispania Citerior, and afterwards found in Cyprus, Cappadocia, Sicily, and Africa; or of another stone of the same nature, *viz.* the phengites. These, tho' expressly distinguished from each other by Pliny (14), are yet reckoned by some moderns (15) as one and

(13) Plin. Nat. Hist. lib. xxxvi. c. 22. §. 45.

(14) Nat. Hist. lib. xxxvi. c. 22. §. 45.

(15) Vid. Salmasius in a passage to be produced hereafter.

the same thing ; and thought to have been nothing but a kind of white transparent talc, of which (according to Mons. (16) Valois) there is found a great quantity in Moscovy at this day.

Now that this *lapis specularis*, or phengites, was really used for windows by the ancient Romans in their houses, &c. cannot be denied ; since (according to the opinion of the learned (17) in antiquity) this usage is mentioned by Seneca (18) among other improvements in luxury introduced in his time. But whether it was so used exclusive of other materials (particularly glass), may, I think, admit a doubt. Salmasius is of opinion (19), that nothing can be determined upon this point from the word *specular* itself, which seems to be a generical term, equally applicable to windows of all kinds, whether consisting of the *lapis specularis*, or any other transparent substance.

And as (according to this learned writer) there is nothing in the term *specular* itself, which hinders it from being extended to windows made of other ma-

(16) Hist. de l'Acad. des Inscript. tom. I.

(17) Montfauc. Antiq. vol. III. part i. lib. iii. c. 4. Lipsius in loc. &c.

(18) *Quædam nostrâ demum prodiisse memoriam scimus ; ut speculariorum usum, perlucente testâ, clarum transmittentium lumen.* Sen. ep. 90.

(19) *Quod fenestrâ obducebatur ad translucidum, ac lucem admittendam speculari vetens Latini vocârunt. Idque ex speculari lapide, qui est *φεγγίτης*, aut ex vitro siebat, aut aliâ translucidâ materiâ. Nam speculari dictum, non quod ex speculari lapide factum esset, sed quod visum transmittenret, ac per id speculari liceret.* Salm. Exerc. Plin. in Solin. tom. II. p. 771.

terials besides those above-mentioned ; so others imagine, that there are some intimations in ancient authors, which require, that it should actually be so extended. Thus Mr. Castells, the ingenious illustrator of the villa's of the ancients, thinks (20), that " if this had not been the case, Palladius would not have given directions to his husbandman to make *specularia* in the *olearium* (21), or store-room, where the olives were preserved. For it appears (says this author) from Pliny's describing a temple (22) built of the *lapis specularis*, or phengites, as the greatest rarity in his time, and the mention Plutarch makes of a room in Domitian's palace lined with it, that it was not common enough for husbandmen to purchase ;" viz. in such quantities, as were required for the purposes mentioned above.

I shall not take upon me to decide upon the weight of this argument of Mr. Castells ; but only observe, that if any one should be induced by it to think, that the use of glafs for windows may be of much greater antiquity than is commonly allowed, or even as old as the fragment, which occasions these remarks, he may find other probable reas ons to corroborate his opinion. As, first, that there seems to have been a natural and obvious transition from the practice of

(20) Villa's of the Anc. illustrated, p. iv.

(21) One of Pliny's cautions for preserving apples is — *Austros specularibus arcere.* Nat. Hist. lib. xv. c. 16.

Martial further informs us, that the Romans used to screen their orchards of choice fruit-trees with *specularia*. Lib. viii. epig. 14.

(22) I suppose he means that of Fortuna Seia. Lib. xxxvi. c. 22.

using

using glass plates for the ornamenting the walls of apartments to that of introducing light into those apartments, (as we find the *lapis specularis* was in fact employed at the same time for both those purposes) and consequently it seems reasonable to suppose, that the latter of these applications could not be long in point of time after the former. But it appears from the authorities produced above, that the former of these usages did actually subsist in the age (23) of Pliny; and therefore before the destruction of Herculaneum, where he lost his life (24). From whence we may draw no improbable conclusion, that the latter destination of plates of glass, (*viz.* for window-fences) did likewise precede the same event.

Give me leave to add further, that this presumptive argument in favour of the antiquity of windows made of plates of glass receives an additional force from the close relation, which must be allowed to subsist between them, and those composed of the *lapis specularis*. The former must be looked upon as an improvement upon the other, as they answered

(23) Salmasius, speaking of the custom of adorning chambers with glass, says—*Quod proximè etatem suam incepisse fieri narrat Plinius. Quum M. Scaurus*— Ex. Plin. tom. II. p. 854.

I do not find this expressly asserted by Pliny: but it might have been so in fact. This fashion indeed was not begun till after Agrippa had built his *thermae*: but if we suppose that to have been even as late as his third consulship, *viz.* ante Christ. 27. (*Helvius*), when he erected the Pantheon (or at least its portico), near adjoining to those *thermae*, there would have been sufficient room, from that period to the birth of Pliny (*viz.* anno Christi 24), for the introduction of this usage.

(24) Plin. Ep. V. l. 111.

all the purposes of convenience, and at the same time were more beautiful ; and being the manufacture (25) of Italy, might probably be purchased at a less expence. Upon all which accounts it seems reasonable to conclude, that one of these inventions would naturally be introductory to the other : and consequently, that as window-lights of the *lapis specularis* began to be used within the memory of Seneca, who died (26) under Nero, about *anno Christi* 68. (*Helvic.*), the original of those of glass may have fair pretensions to a place within the period assigned in the foregoing paragraph, *viz.* some years before the destruction (27) of Herculaneum, in whose ruins the plate before us was buried.

To conclude : I need not observe to you, that all the evidence here produced to prove the usage of glass-windows to have been coæval with the fragment we are now considering, is of the conjectural kind only: for, I must confess, I have not been able to trace it up by any positive authority higher than about 200 years short of the epocha last mentioned, *viz.* to the latter end of the third century (28), when it is expressly mentioned by Lactantius in these words : — *Manifestius est, mentem esse, quæ per oculos ea,*
quæ

(25) Plin. Nat. Hist. lib. xxxvi. c. 26. §. 66.

(26) Vid. *supra*.

(27) Anno Christi 80.

(28) In order to justify my placing the testimony of this Father so high, I would observe, that St. Jerome (*De Scriptor. Eccles.*) says, that Lactantius—*Extremâ senectute magister Cæsaris Crispî filii Constantini in Galliâ fuit.* He must probably have exercised this

*quæ sunt opposita, transpiciat, quasi per fenestras lumen
centem vitro aut speculari lapide obductas.— De op-
ficio Dei, cap. v.*

I am,

S I R,

Your most obedient humble Servant,

J. Nixon.

LXXXI. *An Account of an extraordinary Case of the Efficacy of the Bark in the Delirium of a Fever. By Nic^o. Munckley, M. D. Physician to Guy's-Hospital, and F. R. S.*

Read April 6.

^{1758.} **A**S the following case contains some circumstances, which are curious in themselves, and which may be of service to be known, I have thought it proper to be laid before the Society.

this charge between *anno Christi* 309, when Constantine began to reign, and 320. If he was then of a great age, he might have composed the treatise, out of which this authority is produced, and which was one of the earliest of his works, that are extant (*Vid. Sparkii præf. ad Laetant.*), 40 years before, *viz.* about *anno Christi* 280; which brings us up to 200 years after the overthrow of Herculaneum, as above.